



**CITY OF LODI
COUNCIL COMMUNICATION**

AGENDA TITLE: Adopt Resolution Implementing the Treatment and Direct Utilization of the Surface Water Supply from the Woodbridge Irrigation District Contractual Allotment and Authorizing Solicitation of Proposals for Technical Studies of Implementing this Option

MEETING DATE: June 21, 2006

PREPARED BY: Public Works Director

RECOMMENDED ACTION: That the City Council adopt a resolution initiating direct use of the Woodbridge Irrigation District (WID) annual 6,000 acre-feet contractual allotment by authorizing the solicitation of proposals for technical studies as described below.

BACKGROUND INFORMATION: On several past occasions, the City Council has received information regarding the usage of the City's contracted 6,000 acre-feet per year of Mokelumne River water from WID. Copies of the most recent staff reports are attached (Attachments A and B).

Staff has recommended direct use of this water over groundwater recharge. At the April 19, 2006 meeting, Council asked a number of questions and requested additional information and, at the request of Mr. Ed Steffani of the North San Joaquin Water Conservation District (NSJWCD), delayed making a decision pending the results of a recharge test at a site adjacent to Micke Grove. This report answers those questions, provides the requested information, and summarizes the reasons for the staff recommendation of planning for direct use of the water.

Questions/Answers

? What are the results of the Micke Grove recharge test?

A The test was not completed. The lease-holder did not agree to continue the test. This raises a fundamental question of landowner consent and the City Council's willingness to pursue a project at any given location over a property owner's or tenant's objections.

? How would the City recover recharged water at the Micke Grove site?

A In order to recover recharged water at the Micke Grove site, the City would need to install a well field and water mains connecting the well field to the City's system (Attachment C). This is a different project than the recharge project alternative previously discussed. Properly sizing, locating and cost estimating a well field would require an extensive hydrogeology study and field tests. For purposes of this concept level discussion, we assumed the same number and cost of wells that would be needed to meet the City's needs under future conditions (5 wells, \$3 million). Also, we estimated that a 30-inch water transmission main (and possibly a booster pump station) would be needed at an additional cost of approximately \$5 million. Thus, the total cost of the recovery system would be approximately \$8 million. Note that this

APPROVED:

James R. King
for Blair King, City Manager

well field would be located in and near planned development in North Stockton. This raises numerous complications and issues regarding the future viability of this project.

? What are the cost implications of purchasing versus leasing property?

A Lease costs versus purchase costs are estimated and summarized in the table below:

Recharge Basin - Land Cost Comparisons

Land Area:	88 Acres				
Purchase Cost/Acre¹⁾:	\$ 30,000	\$ 60,000	\$ 100,000	\$ 200,000	\$ 300,000
Total Cost (Purchase):	\$ 2,640,000	\$ 5,280,000	\$ 8,800,000	\$17,600,000	\$26,400,000
Lease Term:	40 Years				
Lease Cost/Acre/Year:	\$ 225	\$ 275	\$ 350	\$ 500	\$ 750
Initial Costs²⁾:	\$ 880,000	\$ 880,000	\$ 880,000	\$ 880,000	\$ 880,000
Total Cost (40 Yr. Lease):	\$ 1,672,000	\$ 1,848,000	\$ 2,112,000	\$ 2,640,000	\$ 3,520,000

Notes:

- 1) Purchase cost includes any site development and/or conveyance costs in addition to actual basin construction costs.
- 2) Initial costs for lease assumes \$10,000 per acre allowance to compensate owner for removal of vines, trees, etc.

Leasing is most likely to be less expensive, although depending on purchase price and lease terms, purchasing could be less expensive over time. The above calculations do not take into account the time value of money, future value of the land and improvements after the assumed 40-year term and the value of maintaining permanent open space.

? What are the water chemistry issues at the Micke Grove site?

A The area is known to have DBCP contamination. The City Attorney has indicated that actions that move or spread contamination could place the City in a difficult liability situation. Also, while the City's costs for DBCP removal in City wells are covered under the terms of a settlement agreement, it is not specific as to how the settlement would apply to wells placed outside the City as part of a recharge/recovery project. Quality of the water recovered from a recharge site would likely be a blend of native groundwater and recharged water.

One water test was done at Armstrong and Pearson Roads, and while no DBCP was found, the water was high in bacteria and nitrate, possibly indicating septic tank influence; see below:

Constituent	Test Site	City Well Average	Notes
Nitrate (mg/l as N)	6.9	2.1	MCL is 10
Total Dissolved Solids (TDS) mg/l	556	247	Delta Goal is 450
Total Coliform Bacteria	170	<1	Over 1.1 would be a drinking water failure

? What are the cost estimates for recharge versus a treatment plant?

- A** The cost estimates have a fairly wide range given the large variation in possible land costs for recharge, the uncertainty over future treatment costs for well water and the lack of site and technology assessment for direct use of the surface water. Based on the above land costs and the detail cost information from Attachment A, Exhibit B, the following table summarizes these ranges. In the short-term, recharge could cost less money. Capital costs of either project can be recovered through Water Impact Fees or other development financing mechanisms. Increased operational costs could be recovered through rate surcharges or community facilities district charges for new development; however, this would effectively mean that the City would have two rate zones, which has not been recommended by staff.

Recharge vs. Direct Use Capital Costs

	Low Range		High Range	
Recharge:	\$ 6,013,000	leased land @ \$350/acre for 40 years	\$ 30,301,000	purchased land @ \$300,000/acre
Recharge w/Recovery:	\$ 11,013,000	above plus transmission system	\$ 35,301,000	above plus transmission system
Direct Use:	\$ 29,500,000	latest estimate	\$ 36,700,000	2004 estimate

Summary of Supporting Information

The reasons behind the staff recommendation for direct use of the WID water are many. Briefly, they are:

- **Diversification of Supply** – Use of multiple supply sources is the preferred model for urban water providers. In particular, conjunctive use of surface water and groundwater is a key element in the California Water Plan (Attachment D). Key to this strategy is using surface water when it is available (in-lieu recharge) and using groundwater in dry years. This strategy is being embraced by many Central Valley cities.
- **Sustainable Use** – The groundwater basin in which Lodi draws its water is being overused to the point the area is seeing water quality being adversely affected. This is not a sustainable practice. The United States Geological Survey has issued a report on groundwater use in the Western

States that states: "Prudent management would give serious consideration to strategies that rely on surface water and hold groundwater in reserve."

- Improvement in Wastewater Quality – Mokelumne River water is substantially lower in total dissolved solids (TDS) than our groundwater. Using this source will reduce the TDS of our wastewater by 14% to 28% depending on a variety of factors. Since our effluent is very near the current goal for Delta discharges, a reduction could help forestall more expensive treatment.
- Recommendations from Others – Staff routinely meets with other water providers in the area and has sought out their opinions on this question. A large majority of those opinions recommend direct use. We have received formal support for direct use from WID and NSJWCD (Attachment E, F). The staff presentation will include comments from staff from WID, San Joaquin County Water Resources Division and City of Stockton.
- Legal Support – While legally either option can be done, staff sought the legal opinion of an expert in water rights. Dan O'Hanlon, of Kronick, Moscovitz, Tiedeman & Gerard has been assisting the City in the PCE/TCE issue and other matters. He is also legal counsel for a number of water districts outside San Joaquin County. The City Attorney has provided the Council a confidential memo on the subject. The Summary of Conclusions states:

"You have asked me to review the potential legal implications of alternative approaches to use of the surface water supply that the City of Lodi has acquired through a contract with Woodbridge Irrigation District. The City is considering two basic options: (1) use the surface supply to recharge the groundwater aquifer, and continue to rely on groundwater as its sole source of supply; or (2) treat and use the surface supply directly, and thereby reduce its use of groundwater.

In our view, the second option, treating and directly using the surface supply, offers the most protection for the City's rights to its water supply. Likewise, we believe that treating and directly using the surface supply puts the City in the strongest position to satisfy its obligations to plan for and provide reliable water supplies. The reasons for these conclusions are discussed below.

Our review is limited to the potential legal implications of the two alternative courses of action. We have not addressed and express no view regarding the relative costs of the two courses of action, or any other relevant factors that may influence the City's ultimate view of the best course of action."

Recommendation

Staff is requesting City Council approval to initiate implementation of the direct use option to utilize the WID 6,000 acre-feet contractual allotment. The first steps will be to solicit proposals from three water consulting firms: HDR, RMC, and West Yost & Associates, all of whom were previously pre-qualified for Lodi water studies. The time frame from proposal solicitation to final deliverables is 12 months and the estimated cost is expected to range from \$250,000 to \$500,000. The studies are all interrelated and will include:

- Process Evaluation/Pilot Study – This study will evaluate various technologies for direct use of the water, with emphasis on meeting the latest and anticipated regulatory requirements and minimizing taste and odor issues.

- Watershed Sanitary Survey – One regulatory requirement for use of surface water is a study of the source waters to identify potential contaminants and other issues that could affect the design of the system.
- Site Assessments – As noted, there are at least two potential sites for the necessary facilities. These need to be evaluated in light of the two previous studies.
- Cost Estimates – These will pull together the information from the three previous studies and evaluate alternatives on a cost basis. Included in this will be consideration of possible arrangements with other water providers and potential for phased construction.
- Financing Plan – This will identify possible arrangements to finance the facilities and impacts to development fees and water rates.
- Environmental/Regulatory Actions – The project will need an environmental impact report and a permit from the State Department of Health Services.
- General Plan – While this is a separate endeavor, staff will work with the General Plan consultants to incorporate appropriate policies and implementation measures. Given that 2/3 of the City's water supply will still come from groundwater, staff will recommend that the City pursue groundwater recharge, using storm water and any other intermittent water supply that may become available.

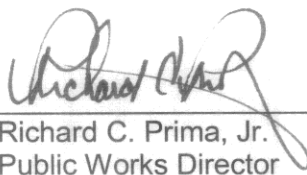
FISCAL IMPACT:

No fiscal impact at this time. Staff will return to Council requesting authorization to execute a professional services agreement with the successful firm. Note that the City is paying WID \$100,000 per month for this water. The banking provisions of the agreement provide for our future

use of past paid-for water at a later date. WID has agreed to a four year extension of the banking provisions and staff will be returning to Council for formal approval when the actual wording of the agreement amendment is finalized.

FUNDING AVAILABLE:

Water Fund



Richard C. Prima, Jr.
Public Works Director

RCP/pmf

cc: Steve Schwabauer, City Attorney
Wally Sandelin, City Engineer
Anders Christensen, Woodbridge Irrigation District
Mel Lytle, San Joaquin County Water Resources Division
Mark Madison, City of Stockton Municipal Utilities
Ed Steffani, North San Joaquin Water Conservation District
Dan O'Hanlon, KMTG



CITY OF LODI COUNCIL COMMUNICATION

AGENDA TITLE: Receive Background Information on Implementing Woodbridge Irrigation District Surface Water Program

MEETING DATE: March 1, 2006

PREPARED BY: Public Works Director

RECOMMENDED ACTION: That the City Council receive background information on implementing the surface water treatment program utilizing the Woodbridge Irrigation District (WID) 6,000 acre-feet contractual allotment. This material is being provided in advance of the March 15, 2006 Council meeting at which staff will request preliminary approvals as described.

BACKGROUND INFORMATION: On several past occasions, the Council has received information regarding the acquisition and usage of 6,000 acre-feet per year of Mokelumne River water from Woodbridge Irrigation District. In May 2003, the City contracted with WID to provide untreated surface water to Lodi for 40 years. At the September 21, 2004 Shirtsleeve meeting, the Water Supply Options Report was presented to the Council. At the April 19, 2005 Shirtsleeve meeting, staff again presented alternatives for implementing the 6,000 acre-feet per year surface water supply. On April 20, 2005, Council approved hiring a consultant to further study and develop a recommendation for full implementation of the WID surface water supply. On June 9, 2005, Council was given a copy of the WID Surface Water Implementation Study. On November 1, 2005, Council received a presentation from the consultant and the recommendation that the City go to a conjunctive use water supply system – one that utilizes both groundwater and treated surface water to serve the demands of Lodi's customers.

Over the course of the past three years, a number of alternatives have been considered with the most feasible options being "treat and drink" and "groundwater recharge". Some of the other alternatives studied include: 1) injection well recharge, 2) raw water irrigation of parks and schools, 3) recharge ponds within the City limits, 4) recharge ponds using North San Joaquin Water Conservation District facilities, 5) East Bay Municipal Utility District banking, and 6) interim supply to Stockton recharge ponds. These alternatives were ruled out primarily due to high costs and regulatory uncertainties.

At the regional level, City of Lodi has been participating in several water supply activities that will, hopefully, bring additional water supplies to the City and the other agencies in the region. Examples include the Mokelumne River Water and Power Authority MORE Project that seeks to capture unappropriated peak flows in the Mokelumne River. Also, Lodi is collaborating with Stockton East Water District, North San Joaquin Water Conservation District and WID on a pilot-scale recharge project near Micke Grove Park. North San Joaquin Water Conservation District recently passed a groundwater recharge assessment for their groundwater recharge and is evaluating multiple sites in its district. Note that a large part of the City (generally, the area east of Mills Avenue) is within the District and pays this nominal assessment.

APPROVED: _____

Blair King, City Manager

The recently-completed 2005 Urban Water Management Plan concisely presents the City's existing and future water supply vs. demand outlook (see Exhibit A). As shown on Exhibit A, the safe long-term yield of the groundwater basin underlying the City is estimated at 15,000 acre-feet annually (afa). At present, the City is using 17,300 afa to meet the demands of existing customers, reflecting a current need for additional water supply and/or conservation.

The UWMP anticipates that through a combination of conservation (the on-going City-wide installation of water meters is expected to conserve approximately 2,400 afa upon completion) and adding 6,000 afa of WID treated surface water, the City's sustainable water supply will meet or exceed the projected water demands up to the year 2029.

The City Council will be asked to support staff's recommendation to pursue the "treat and drink" alternative on the basis it is the **"highest and best use"** of the WID water given a number of factors that are compared below.

Cost

The estimated construction cost for a surface water treatment facility and associated facilities is estimated to be up to \$29.5 million. These costs are inclusive of site acquisition, surface water diversion piping, ultrafiltration (without pretreatment) using membrane technology, chlorine disinfection, transmission piping, and storage tanks. This alternative does eliminate the need to construct additional wells to serve future demands.

The construction cost for a groundwater recharge program is estimated to be \$30.3 million. This assumes a recharge field 88 acres in size adjacent to the WID canal at \$300,000 per acre, including site improvements and pipe appurtenances. Construction of five new wells is included in the estimate.

These costs are different from other numbers that have been discussed in the past. A comparison of former and current estimates is provided in Exhibit B.

In either scenario, new development is expected to fund the capital improvements. Operating and maintenance costs are considerably higher for the "treat and drink" alternative, when compared to the recharge option. The change to current rates would be an increase of approximately 15% (very rough estimate), if the burden was shared City-wide.

Benefit

Criteria to evaluate benefits to the City of Lodi and the region include: 1) direct benefit to the groundwater resource, 2) long-term water quality, 3) sharing the regional burden, and 4) time of use. Each is discussed below.

Benefit to the Groundwater Resource

In the context that the water demands of existing Lodi are matched by the safe yield of the groundwater resource, the "treat and drink" alternative eliminates further mining of the groundwater and, thereby, results in the highest direct benefit to the groundwater basin currently serving the City.

Groundwater recharge programs have a number of inherent losses including evaporation, uptake by plant materials, and capture within the soil column. These losses can be as high as 30 percent, meaning

the process is about 70% efficient. In addition, the recharge water, once it reaches the groundwater, moves away from the Lodi point of use and toward the central/eastern-County groundwater depression. A map of the County groundwater contours is provided in Exhibit C.

Long-Term Water Quality

Lodi has long enjoyed a high quality of water that is pumped from the ground through wells that are clustered in relatively close proximity to the Mokelumne River. Not only has the quality of water been excellent, but the yield from each well has been relatively high, with an average yield of approximately 1,400 gallons per minute. Based upon experience and water quality information for areas southerly and westerly of the City, new wells in these areas are expected to have a higher salinity level and lower yields.

For the "treat and drink" alternative, the salinity levels in the treated surface water will be lower than levels currently found in the groundwater. Combining these two sources for potable use will result in a lowering of salinity levels in both our drinking water and our wastewater. This provides a long-term tangible benefit to the City as the State is expected to impose limits on salinity for discharges to the Delta. Lowering the salinity of our "source water" will help avoid very costly improvements to remove salinity at the wastewater end of the use cycle.

A groundwater recharge program will essentially not alter the water quality characteristics of the City's groundwater resource.

The "treat and drink" alternative will result in chlorination of the entire City water system as is required by State regulation. Most in the industry agree that chlorination requirements will also be imposed upon all groundwater users in the foreseeable future.

Sharing the Regional Burden

On a regional basis, the various cities and agencies are collaboratively working to enhance the supply side of the region's groundwater resource. The groundwater basin Lodi shares with other agencies and individual property owners is being mined by over 150,000 afa. This results in declining water levels in wells, which reduces yield, increases pumping costs, and impacts water quality as more saline water is drawn into the basin, rendering wells unfit for use. 150,000 afa and more is needed to meet the goal to reverse and stabilize this problem. On a conceptual level, the principal strategies to achieve this goal include: 1) securing additional surface water resources, 2) elimination or deferral of further groundwater pumping, 3) banking through recharge or deferral of pumping, and 4) regional recharge. The MORE project was described above. The Stockton Delta Water Supply Project includes a treatment plant that will begin treating 56,000 afa within three years. Lodi's water treatment plant can begin producing 6,000 afa of treated drinking water within 4.5 years. A recharge program would provide somewhat less regional benefit by virtue of the losses described above.

Time of Use

Water demands within the City are highest in the spring, summer and fall. Conversely, the lowest demands are in the winter. Our WID water is available from March 1 through October 15, and this perfectly matches our highest demand period. Lodi has secured high quality surface water deliveries that meld with demands, both in quantity and in time. To store such water in the ground during periods of peak demands does not make a lot of sense.

As is the strategy of many of the regional recharge programs, excess water, that usually becomes available in the winter months, is diverted to fallow fields for percolation. Often times, this water is sediment laden and well suited for groundwater recharge. The City of Lodi could pursue a similar strategy by diverting storm drainage water to recharge areas and/or by altering designs for new developments to incorporate recharge facilities.

Staff Recommendation

At the March 15 meeting, staff will be requesting City Council approval to move forward with the “treat and drink” alternative and that the City Council authorize staff to solicit proposals for Preliminary Water Treatment Master Planning work required to prepare preliminary design alternatives and further recommendations. Design alternatives could include partnerships with other agencies.

Among the tasks to be done are:

1. Watershed Assessment
2. Process Evaluation and Pilot Testing
3. Alternative Site Evaluations
4. Cost Estimates
5. Financing Alternatives
6. Environmental and Regulatory Considerations

Staff recognizes that this recommendation is not what we anticipated when the WID water purchase agreement was made. Since then, a number of factors have made groundwater recharge a less desirable alternative. Regulatory requirements on recharge projects have increased in the last few years and, most recently, water rights and underground storage permit requirements are making recharge projects more uncertain in the long-run. However, as noted earlier, recharge may be a viable alternative for the irregular peak flows associated with local storms and high river runoff events.

Due to the design complexity, regulatory requirements and cost of projects of this nature, major design decisions today are no longer made unilaterally by a project team. Instead, a consensus is reached only after participation by members of the design team and individuals outside the team, including owners, operators, regulatory agencies and the general public. Therefore, a process of measured steps, of which this is the first, is our recommendation.

FISCAL IMPACT: Information only. None at this time.

FUNDING AVAILABLE: Not applicable.

for Wally Sandelen
Richard C. Prima, Jr.
Public Works Director

Prepared by Richard Prima, Public Works Director and F. Wally Sandelin, City Engineer

RCP/FWS/pmf

Attachments

EXHIBIT A

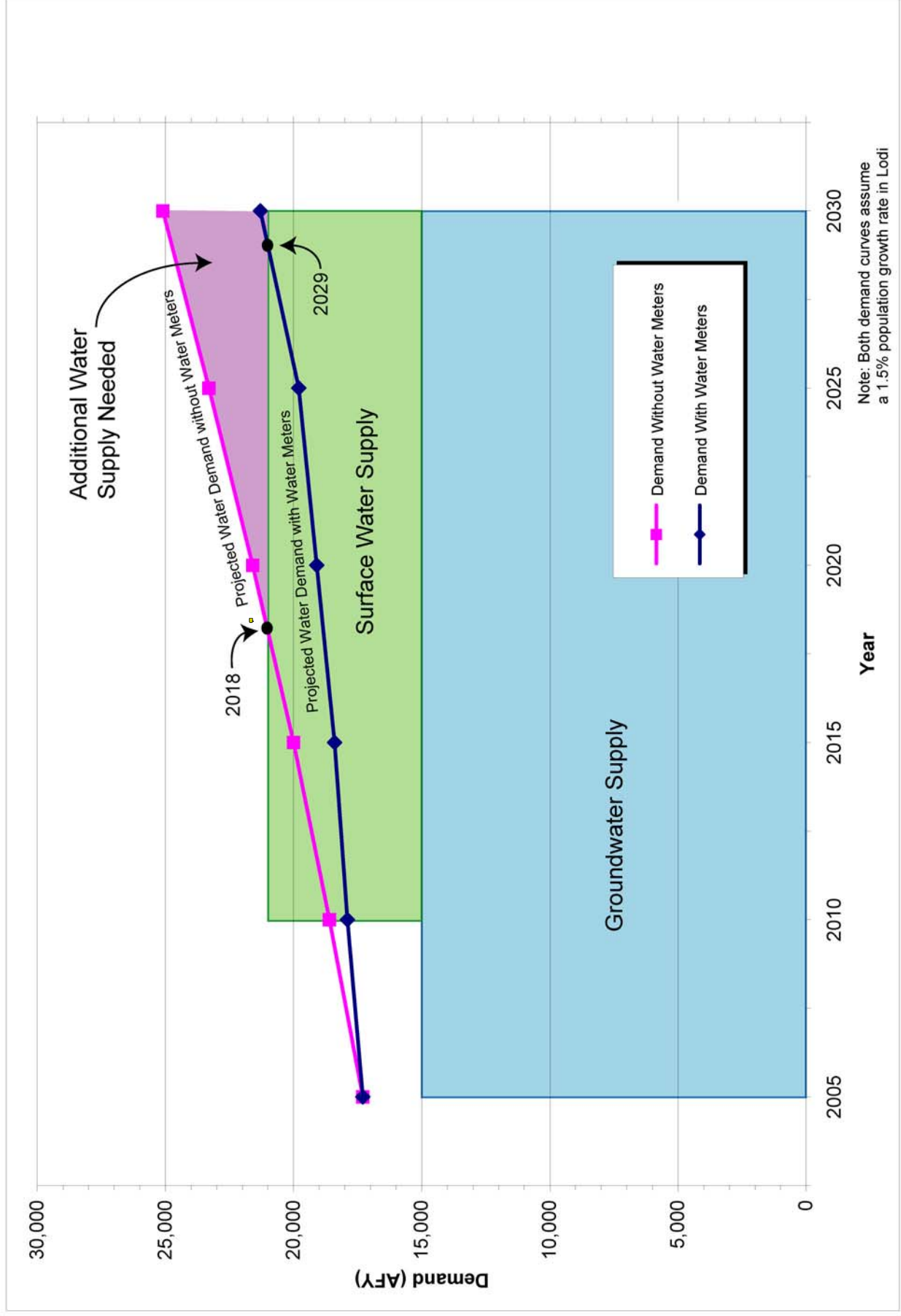


EXHIBIT B

Comparison of Planning Cost Estimates

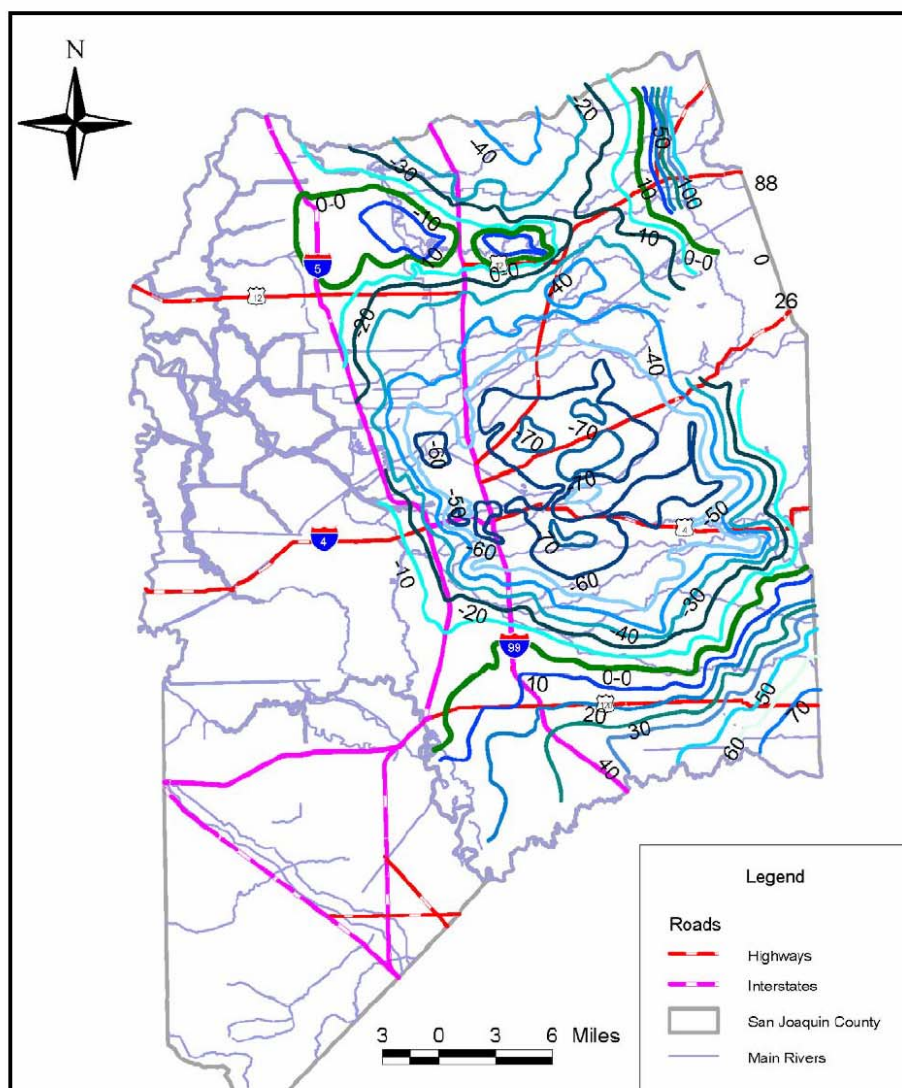
Recharge Basin

	2005	2006
Construction of Recharge Basin	\$593,000	\$593,000
Construction Contingency (20%)	\$119,000	\$119,000
Engineering and Other Fees (15%)	\$89,000	\$89,000
Subtotal	\$801,000	\$801,000
Purchase Land for Basin	\$17,600,000	\$26,400,000 ⁽¹⁾
CEQA/NEPA	\$100,000	\$100,000
Water Wells		\$3,000,000 ⁽²⁾
Total	\$18,501,000	\$30,301,000

Surface Water Treatment Plant

	2005	2006
Surface Water Treatment Plant and Associated Transmission Facilities	\$25,700,000	\$20,000,000 ⁽³⁾
Construction Contingency (20%)	\$5,100,000	\$4,000,000
Engineering and Other Fees (15%)	\$3,900,000	\$3,000,000
Subtotal	\$34,700,000	\$27,000,000
Purchase Land for Plant	\$1,000,000	\$1,500,000 ⁽⁴⁾
CEQA/NEPA	\$1,000,000	\$1,000,000
Total	\$36,700,000 ⁽⁵⁾	\$29,500,000

- (1) The land cost for 88 acres is assumed to be \$300,000 per acre compared to \$200,000 per acre as reflected in the West Yost Lodi Surface Water Implementation TM. (West Yost TM)
- (2) Five new wells are required for the groundwater recharge alternative and the estimated construction cost is \$600,000 per well or \$3,000,000. This cost was not included in the West Yost TM.
- (3) Further research into the type of treatment processes and after visitation to three Northern California plants, a better planning estimate has been determined to be \$20,000,000 for constructing a 10 MGD treatment plant and associated transmission facilities.
- (4) The land cost for 5 acres is assumed to be \$300,000 per acre, compared to \$200,000 per acres as reflected in the West Yost TM.
- (5) The West Yost TM presented a \$50 million number that was \$36.7 million adjusted to the forecast mid-point of construction.

Eastern San Joaquin Groundwater Basin Groundwater Management Plan**Figure ES-2 Fall 1993 Groundwater Contours**

Source: Camp Dresser & McKee Inc.



CITY OF LODI COUNCIL COMMUNICATION

AGENDA TITLE: Adopt Resolution Implementing Surface Water Treatment Program Utilizing Woodbridge Irrigation District Contractual Allotment and Authorizing Solicitation of Water Treatment Plant Proposals

MEETING DATE: April 19, 2006

PREPARED BY: Public Works Director

RECOMMENDED ACTION: That the City Council adopt a resolution implementing the surface water treatment program utilizing the Woodbridge Irrigation District (WID) 6,000 acre-feet contractual allotment by authorizing the solicitation of proposals from three water consulting firms for preliminary water treatment plant studies. **This staff report contains similar information to that presented at the March 1, 2006 Council meeting. Additional information to address comments received by staff have been added and are identified by bold text.**

BACKGROUND INFORMATION: On several past occasions, the City Council has received information regarding the acquisition and usage of 6,000 acre-feet per year of Mokelumne River water from Woodbridge Irrigation District. In May 2003, the City contracted with WID to provide untreated surface water to Lodi for 40 years. At the September 21, 2004 Shirtsleeve Meeting, the Water Supply Options Report was presented to the Council. At the April 19, 2005 Shirtsleeve meeting, staff again presented alternatives for implementing the 6,000 acre-feet per year surface water supply. On April 20, 2005, Council approved hiring a consultant to further study and develop a recommendation for full implementation of the WID surface water supply. On June 9, 2005, Council was sent a copy of the WID Surface Water Implementation Study. On November 1, 2005, Council received a presentation from the consultant and the recommendation that the City go to a conjunctive use water supply system – one that utilizes ground water and treated surface water to serve the demands of Lodi's customers.

Over the course of the past three years, a number of alternatives have been considered with the most effort focused upon "treat and drink" and "groundwater recharge." Some of the other alternatives included: 1) injection well recharge, 2) raw water irrigation of parks and schools, 3) recharge ponds within the City limits, 4) recharge ponds using North San Joaquin Water Conservation District facilities, 5) East Bay Municipal Utility District banking, and 6) interim supply to Stockton recharge ponds.

At the regional level, City of Lodi has been participating in several water supply programs that will, in the future, bring additional water supplies to the City and the other agencies in the region. Examples include the Mokelumne River Water and Power Authority MORE Project that seeks to capture unappropriated flows in the Mokelumne River. Also, Lodi is collaborating with Stockton East Water District and North San Joaquin Water Conservation District on a pilot-scale recharge project next to Micke Grove Park. North San Joaquin Water Conservation District recently passed a land-use assessment for a pilot groundwater recharge project and is evaluating multiple sites in its district.

APPROVED: _____

Blair King, City Manager

At present, the City is using 17,300 acre-feet per year to meet the demands of existing customers. Resulting from the installation of water meters that is currently underway, a reduction in demand (through conservation) is realistically expected to be 2,400 acre-feet per year. Therefore, the anticipated future demand for existing Lodi will be approximately 15,000 acre-feet per year. As presented in the 2005 Urban Water Management Plan, the safe, long-term yield of the groundwater underlying the City is 15,000 acre-feet per year.

The City Council is being asked to support staff's recommendation to pursue the "treat and drink" alternative on the basis it is the **"highest and best use"** of the WID water, given a number of factors that are compared below.

Cost

The estimated construction cost for a surface water treatment plant and associated facilities is estimated to be up to \$25 million. These costs are inclusive of site acquisition, surface water diversion piping, ultrafiltration (without pretreatment) using membrane technology, chlorine disinfection, distribution piping, and storage tanks. This alternative does eliminate the need to construct additional wells to serve new demands.

The estimated construction cost for a groundwater recharge program is estimated to be \$30 million. This assumes a recharge field 88 acres in size adjacent to the WID canal at \$300,000 per acre, including site improvements and pipe appurtenances. Construction of five new wells is included in the estimate.

In either scenario, new development is expected to fund the capital improvements. Operating and maintenance costs are considerably higher for the "treat and drink" alternative. The estimated change to current rates would be an increase of approximately 15%, if the burden were shared City-wide.

Staff has received comments stating the recharge option costs have been over estimated and that the Micke Grove Trust lands could be acquired for constructing the recharge basins at a minimal cost. However, the current lease holder has stated intent to farm the Trust property and may not be willing to surrender the lease for the purpose of constructing recharge basins. Therefore, the estimate is based on purchasing the land needed for constructing the recharge basins in the immediate vicinity of the Lodi City limits or adjacent to the current General Plan boundary. Certainly, if land costs are lower, the recharge project would have a lower capital and operating cost compared to the treatment plant option. However, this assumes current conditions pertaining to water quality (see later comments).

Groundwater Rights

The rights to groundwater resulting from surface recharge are not clearly defined in a groundwater basin in an overdraft condition that is not yet adjudicated. Further, the City is assuming we would be getting credit from a recharge program toward meeting requirements of SB 221/SB 610 Water Supply Assessments. Discussions with legal experts on the issue indicated the City's rights to recharged groundwater would best be secured by obtaining a formal resolution from each water agency within the basin limits. It is staff's opinion this could be a daunting task. And, the recommendation relative to securing water supply credits to meet SB221/SB610 requirements was to treat and drink the water.

Benefit

Criteria to evaluate benefits to the City of Lodi and the region include: 1) direct benefit to the groundwater resource, 2) long-term water quality, 3) sharing the regional burden, and 4) time of use. Each is discussed below.

Benefit to the Groundwater Resource

In the context that the water demands of existing Lodi are matched by the safe yield of the groundwater resource, the "treat and drink" alternative eliminates further mining of the groundwater and, thereby, results in the highest direct benefit.

Groundwater recharge programs have a number of inherent losses, including evaporation, uptake by plant materials, and capture within the soil column. These losses can be as high as 30 percent **although proper basin location and construction could improve performance and efficiency**. In addition, the recharge water, once it reaches the groundwater "stream", moves away from the Lodi point of use and toward the central-county depression.

Currently, the groundwater depression is located south and east of Lodi. Recent modeling work performed by San Joaquin County suggests the groundwater depression will shift from its current location to a location (south easterly) more directly east or northeast of Lodi over the next 20+ years. If this prediction becomes reality, the City would want to construct recharge basins at the westerly boundary of the City to assure the City could then extract the water from the ground through its wells.

Long-Term Water Quality

Lodi has long enjoyed a high quality of water that is pumped from the ground through wells that are clustered in relatively close proximity to the Mokelumne River. Not only has the quality of water been excellent, but the yield from each well has been relatively high, with an average of approximately 1,400 gallons per minute per well. Based upon experience and water quality information for areas southerly and westerly of the City, new wells in these areas are expected to have higher salinity levels and lower yields. **As the basin continues to be overdrafted, there is a high risk that groundwater quality will degrade and that future wells will need treatment systems that are not included in the cost estimate.**

For the "treat and drink" alternative, the salinity in the water will be lower than found in the groundwater and this will result in a lowering of salinity levels in the wastewater. This provides a long-term tangible benefit to the City as the State is expected to impose limits on salinity for discharges to the Delta. Lowering the salinity of our "source water" will avoid very costly improvements to remove salinity at the wastewater end of the use cycle.

A groundwater recharge program will essentially not alter the water quality characteristics of the City's groundwater resource.

The "treat and drink" alternative will result in chlorination of the entire City water system, as is required by State regulation. Most in the industry agree that chlorination requirements will also be imposed upon all groundwater users in the foreseeable future. Lodi is the largest community in the State solely using groundwater without regular chlorination.

Sharing the Regional Burden

On a regional basis, the various cities and agencies are collaboratively working to enhance the supply side of the region's groundwater resource. On a conceptual level, the principal strategies to achieve this goal include: 1) securing additional surface water resources, 2) elimination or deferral of further groundwater pumping, 3) banking through recharge or deferral of pumping, and 4) regional recharge. The MORE project was described above. Stockton Delta Water Treatment Plant will begin treating 56,000 acre-feet per year within three years. Lodi's water treatment plant can begin producing 6,000 acre-feet per year of drinking water within 4.5 years. A recharge program would provide somewhat less regional benefit by virtue of the losses described above.

Time of Use

Water demands within the City are highest in the spring, summer and fall. Conversely, the lowest demands are in the winter. Our WID water is available from March 1 through October 15 and this perfectly matches our highest demand period. Lodi has secured high quality water that melds with demands, both in quantity and in time. To store such water in the ground to be pumped out later does not make a lot of sense.

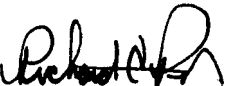
As is the strategy of many of the regional recharge programs, excess water that usually becomes available in the winter months is diverted to fallow fields for percolation. Often times, this water is sediment laden and well suited for groundwater recharge. The City of Lodi could pursue a similar strategy by diverting storm drainage water to recharge areas and/or by altering designs for new developments to incorporate recharge facilities.

Recommendation

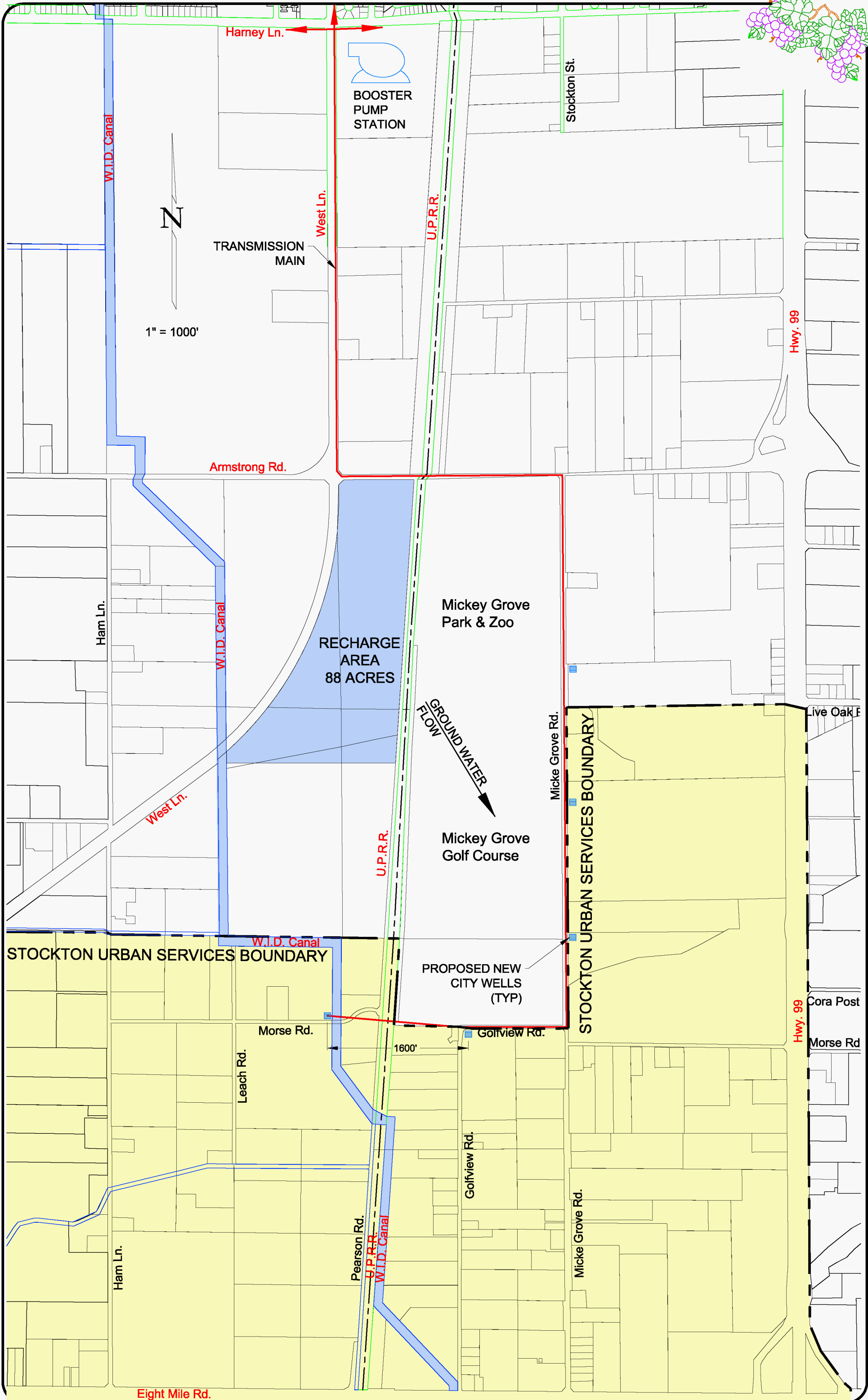
Staff is requesting City Council approval to initiate implementation of a surface water treatment program that would utilize the WID 6,000 acre-feet contractual allotment. The first steps will be to solicit proposals from three water consulting firms: HDR, RMC, and West Yost & Associates, all of whom were previously pre-qualified for Lodi water studies. The time frame from proposal solicitation to final deliverables is 12 months and the estimated cost is expected to range from \$250,000 to \$500,000. Three alternative treatment plant scenarios are currently envisioned: 1) stand-alone Lodi plant, 2) partnering in the Stockton Delta Water Treatment Plant, and 3) stand-alone Lodi plant sharing "source water" with the Stockton Delta Water Treatment Plant.

FISCAL IMPACT: No fiscal impact at this time. Staff will return to Council requesting authorization to execute a professional services agreement with the successful firm.

FUNDING AVAILABLE: Not applicable.



Richard C. Prima, Jr.
Public Works Director



Chapter 4 *Conjunctive Management and Groundwater Storage*

Conjunctive management is the coordinated operation of surface water storage and use, groundwater storage and use, and conveyance facilities to meet water management objectives. Although surface water and groundwater are sometimes considered to be separate resources, they are connected by the hydrologic cycle. Conjunctive management allows surface water and groundwater to be managed in an efficient manner by taking advantage of the ability of surface storage to capture and temporarily store storm water and the ability of aquifers to serve as long-term storage.

There are three primary components to a conjunctive management project when the primary objective is to increase average water deliveries. The first is to recharge groundwater when surface water is available to increase groundwater storage (see Box 4-1). In some areas this is accomplished by reducing groundwater use and substituting it with surface water, allowing natural recharge to increase groundwater storage (also called in-lieu recharge). The second component is to switch to groundwater use in dry years when surface water is scarce. The third component is to have an ongoing monitoring program to evaluate and allow water managers to respond to changes in groundwater, surface water, or environmental conditions that could violate management objectives or impact other water users. Together these components make up a conjunctive management project. Conjunctive management projects may have other objectives in place of or in addition to improving average water deliveries. These other objectives may include improving water quality, reducing salt water intrusion, and reducing groundwater overdraft.

Other topics in the Water Plan that are related to conjunctive management include the strategies on Groundwater Remediation / Aquifer Remediation, Recharge Areas Protection, Water Transfers, and System Reoperation.

Conjunctive Management in California

Conjunctive management has been practiced in California to varying degrees since the Spanish mission era. The first known artificial recharge of groundwater in California occurred in Southern California during the late 1800s and is now used as a management tool in many areas. Two examples illustrate the types of conjunctive management under way on a regional and local scale. In Southern California, including Kern County, conjunctive management has increased average-year water deliveries by more than 2 million acre-feet (AGWA, 2000). Over a period of years, artificial recharge in these areas has increased the water now in groundwater storage by about 7 million acre-feet.

Box 4-1 Groundwater Recharge

Groundwater recharge is the movement of surface water from the land surface, through the topsoil and subsurface, and into de-watered aquifer space. Recharge occurs naturally from precipitation falling on the land surface, from water stored in lakes, and from creeks and rivers carrying storm runoff. Recharge also occurs when water is placed into constructed recharge ponds (also called spreading basins), when water is injected into the sub-

surface by wells, and when water is released into creeks and rivers beyond what occurs from the natural hydrology (for example, by releases of imported water). These later examples of recharge are often called artificial, intentional, managed or induced recharge. Significant amounts of recharge can also occur either intentionally or incidentally from applied irrigation water and from water placed into unlined conveyance facilities.

WOODBIDGE IRRIGATION DISTRICT**18777 N. LOWER SACRAMENTO ROAD****WOODBIDGE, CALIFORNIA 95258****(209) 369-6808****FAX: 369-6823**

DIRECTORS

WILLIAM STOKES
PRESIDENT**ED LUCCHESI**
VICE PRESIDENT**BILL SHINN**
AVERY McQUEEN
HENRY P. VAN EXEL**ANDERS CHRISTENSEN**
MANAGER
SECRETARY / TREASURER**JIM SHULTS**
SUPERINTENDENT

Friday, May 5, 2006

RECEIVED

MAY 8 2006

RECEIVED

MAY - 8 2006

City Clerk
City of LodiSusan Hitchcock, Mayor
c/o City Clerk's Office
P.O. Box 3006
Lodi, CA 95241-1910**CITY OF LODI**
PUBLIC WORKS DEPARTMENT

Dear Mayor Hitchcock,

The Woodbridge Irrigation District recently passed Resolution 03-09-06-01 authorizing an amendment to extend the 2003 Lodi Water Sale Agreement for four additional years to allow Lodi to develop its plan to use the 6,000 acre feet of water without losing banked water. Under the amendment, a total of 42,000 acre feet of water could be banked and the contract is extended from May 13, 2043 to September 30, 2047. The Resolution passed recognizes Lodi's need of up to four years to construct a new 10 MGD surface water treatment plant and stated,

"the District also believes strongly that the highest and best use of water by the City would be through a new surface water treatment plant and delivery to the City's customers rather than through ground water recharge".

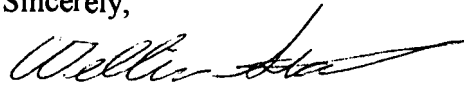
The water sold to Lodi comes from the District's pre-1914 water rights not subject to California Legislative or State Water Resource Control Board (SWRCB) control. If this water is placed in the ground, State agencies such as the SWRCB and its Regional Water Quality Control Board could possibly assert authority to control of recharged waters. Such waters may be subject to State control and therefore do not have the same priority as the pre-1914 water used directly by the 'treat and drink' option. In WID's opinion, Lodi's use of the water under the treatment plant option has the highest priority and such use would not be subject to a future entanglement in the event of an adjudication of the ground water basin or in disputes with landowners regarding changes to ground water levels or quality. Lodi's use of water through the proposed treatment plant would strengthen its long term water rights into the future as state regulators add new regulations and the competition for limited water intensifies.

We are proud to announce that WID plans to build a new state of the art fish screen that further serves to enhance and protect WID's rights to divert water from the Mokelumne and would serve Lodi's long-term interests as well. The estimated \$3 million dollar

Susan Hitchcock, Mayor
Friday, May 5, 2006

investment in the new screen will meet the current standards for fish screen as regulated by the California Department of Fish & Game (CDFG) and NOAA Fisheries for the protection and preservation of fish for all life stages, particularly steelhead and salmon. The District will continue to make sound investments in its infrastructure in anticipation of being able to provide for the future urban and agricultural needs of Lodi and the surrounding area

Sincerely,

A handwritten signature in dark ink, appearing to read 'William Stokes', with a long, sweeping horizontal stroke extending to the right.

William Stokes, President

Cc: Lodi City Council\
Richard Prima, Director of Public Works
WID Board of Directors

Enc: WID Resolution 03-09-06-01

RESOLUTION NO. 03-09-06-01
OF WOODBRIDGE IRRIGATION DISTRICT
AUTHORIZING EXECUTION OF AN AMENDMENT EXTENDING THE
AGREEMENT WITH LODI FOR ADDITIONAL FOUR YEARS

WHEREAS. The City of Lodi has requested that its 40-year Agreement for Purchase of Water from the District, entered into on May 13, 2003, be extended for an additional four years, and also that the City be allowed to continue to bank unused water for an additional four years beyond the existing cutoff date of May 13, 2006; and

WHEREAS, the Board of Directors of the District are agreeable to granting such extension in the form of an Amendment as finally approved by the President; and

WHEREAS, the Board of Directors also wishes to inform Lodi that the District believes strongly that the highest and best use of the water by the City would be through a new surface water treatment plant and delivery to the City's customers rather than through groundwater recharge;

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF WOODBRIDGE IRRIGATION DISTRICT, as follows:


Section 1. The President and Secretary are authorized and directed to execute a First Amended Agreement with the City of Lodi, to extend the termination date of the Agreement from May 13, 2043 to September 30, 2047, and to allow the City to continue to bank unused water up to 6,000 acre-feet per annum for an additional four years from May 13, 2006 to October 15, 2010, not to exceed a total of 24,000 acre feet. The First Amended Agreement shall in form and substance as recommended by the Manager and Attorney and approved by the President.

ADOPTED the 9th day of March, 2006, by the following vote:

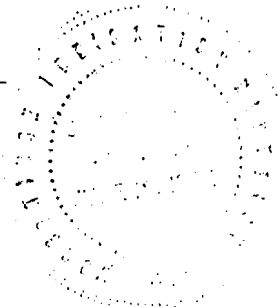
AYES: Directors Stokes, Shinn , Van Exel and McQueen

NOES: None

ABSENT: Luchessi

Signed: 
William Stokes, President

Attest: 
Anders Christensen, Secretary



DIRECTORS
John Ferreira
Thomas Hoffman
Joe Mehrten
Matthys Van Gaalen
Fred Weybret

NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT

221 W. Pine St., Lodi, CA 95240

GENERAL MANAGER
Edward M. Steffani

LEGAL COUNSEL
Stewart C. Adams, Jr.

June 12, 2006

Mayor Susan Hitchcock
City Council Members
City of Lodi
221 West Pine Street
Lodi, CA 95240

SUBJECT: Groundwater Recharge

Dear Mayor Hitchcock and Council Members,

We are writing to thank you for postponing your water treatment plant decision until the District could complete its recharge test on the Micke Trust Property, and to sadly report that the late rains and the tenant's need to plant a vineyard have made early completion of the test improbable.

The District Board understands the City's need to move ahead with the treatment plant decision, and we ask only that the plant be sized to allow for combination treatment and recharge projects in cooperation with the District.

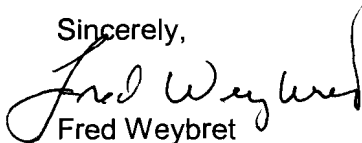
The District has a right to 20,000 acre-feet per year of Mokelumne River water but only uses 3,000. The remaining 17,000 acre-feet are available for City treatment and/or recharge. Although not available every year, the water can be diverted from December 1st to November 15th. Including the 1987 – 1992 drought, water has been available 75% of the last 29 years.

It is the District's understanding that the Woodbridge Irrigation District water is available to the City only during the irrigation season. The District water could be used by the City during the other months of normal and wet years, and the District water would be available at virtually no cost to the City.

We agree with Public Works Director Prima that the Micke Trust Land is not the only promising site for recharge. We would like to work with him to find sites which could benefit the City and District.

We would be pleased to meet at any time to discuss use of District water for City treatment and for recharge projects.

Sincerely,



Fred Weybret
President

FW:bs

RESOLUTION NO. 2006-_____

A RESOLUTION OF THE LODI CITY COUNCIL
INITIATING DIRECT USE OF THE WOODBRIDGE
IRRIGATION DISTRICT CONTRACTUAL ALLOTMENT
AND AUTHORIZING SOLICITATION OF PROPOSALS
FOR TECHNICAL STUDIES

=====

NOW, THEREFORE, BE IT RESOLVED that the Lodi City Council hereby initiates direct use of the Woodbridge Irrigation District 6,000 acre-feet contractual allotment, and further authorizes solicitation of Proposals for technical studies.

Dated: June 21, 2006

=====

I hereby certify that Resolution No. 2006-_____ was passed and adopted by the City Council of the City of Lodi in a regular meeting held June 21, 2006, by the following vote:

AYES: COUNCIL MEMBERS –

NOES: COUNCIL MEMBERS –

ABSENT: COUNCIL MEMBERS –

ABSTAIN: COUNCIL MEMBERS –

JENNIFER M. PERRIN
Interim City Clerk

2006-_____



City Council Presentation

WID Surface Water Action Plan

June 21, 2006



Fork in the Road

Recommended

Direct Use –
Treat & Drink

**Current &
Supplemental
Surface Water
Supplies**

Recharge

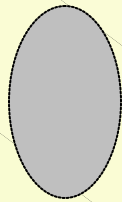
Why Treat & Drink (Direct Use)?

- ✦ Supply diversification, best use (conjunctive use)
- ✦ Sustainable practices
- ✦ Improvement in wastewater quality
- ✦ Recommendations from other experts
- ✦ Legal Support, issues with recharge

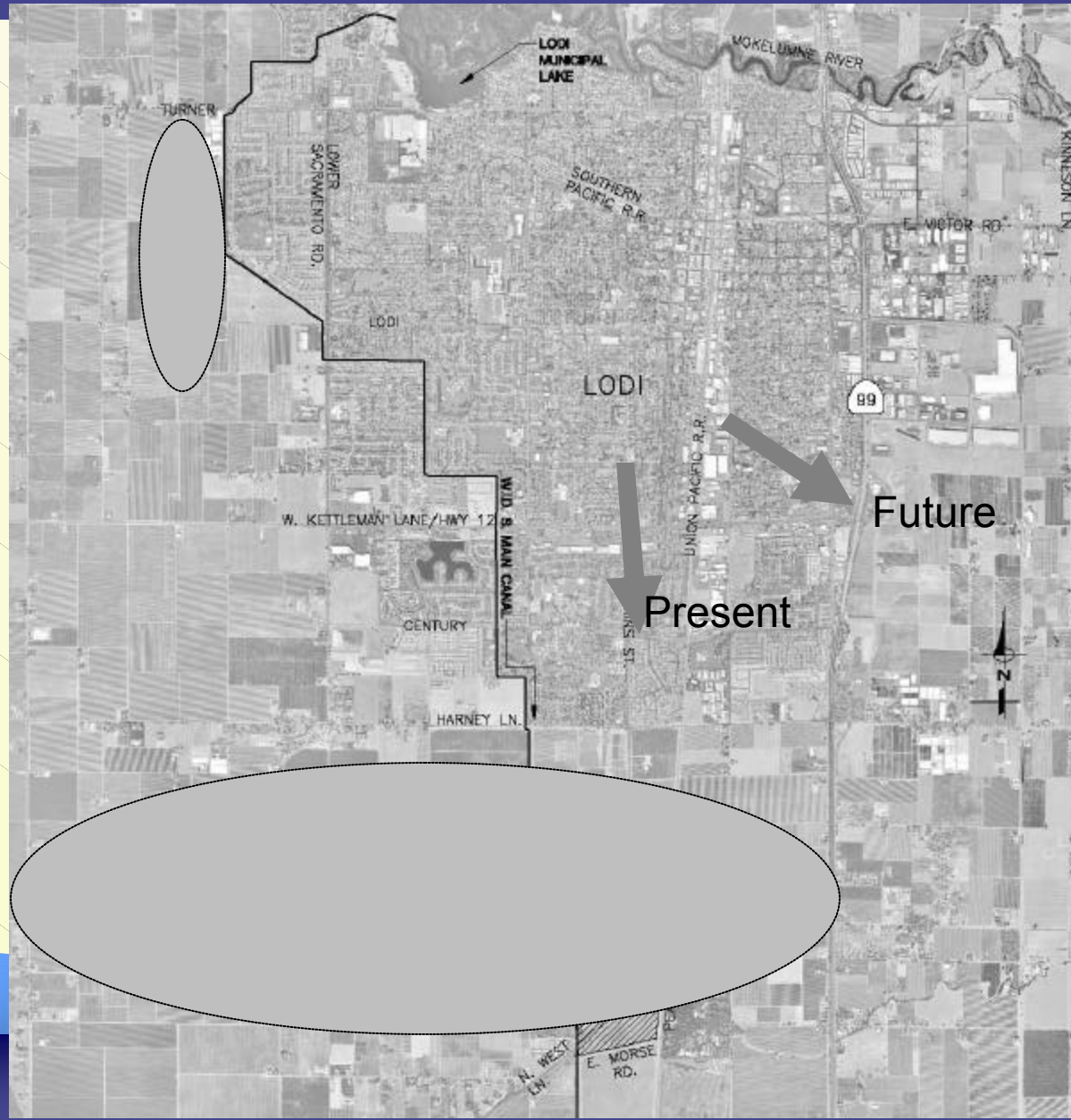
Potential Site Locations - GW Recharge Basins

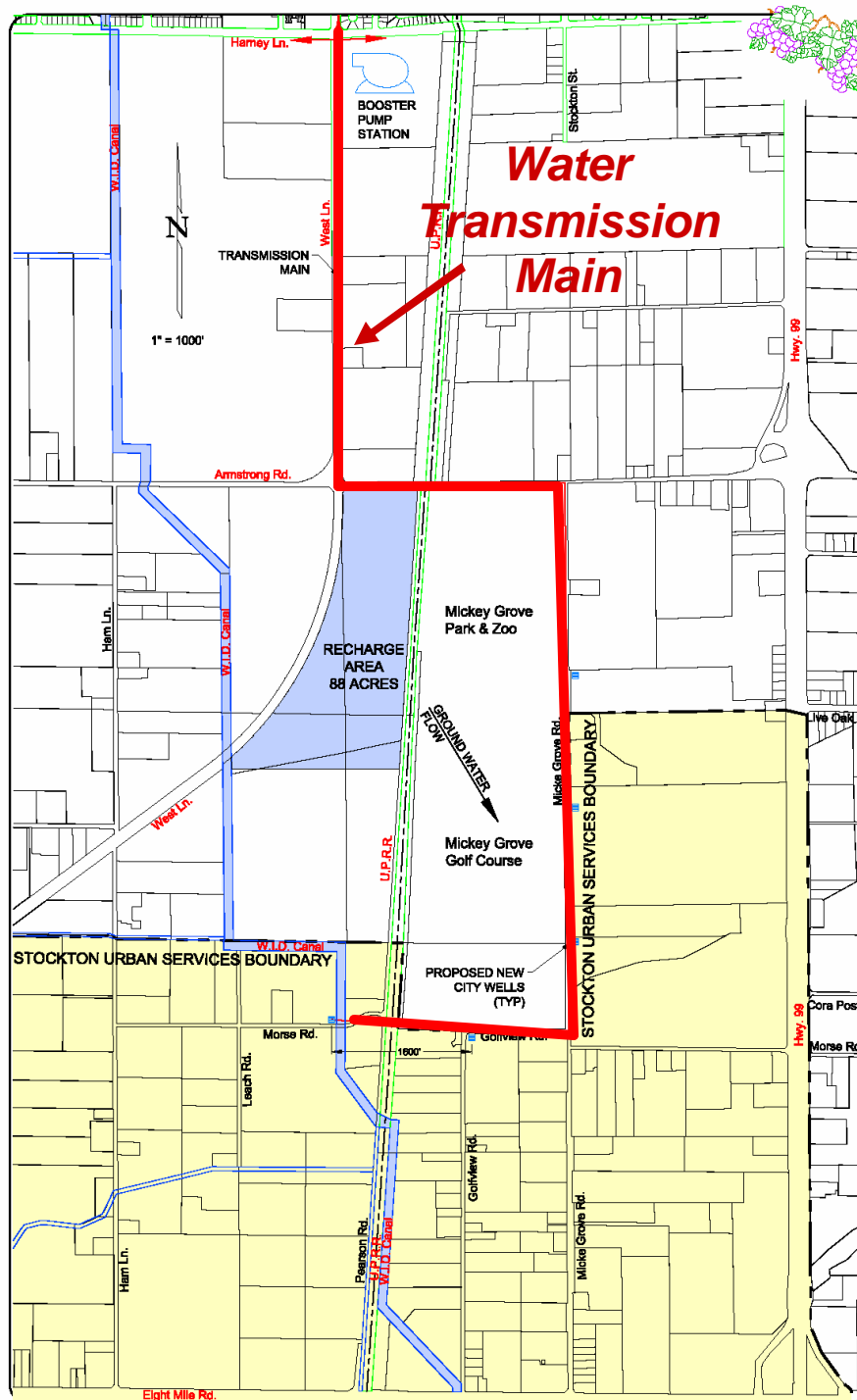


General
groundwater
movement
direction



General site
areas





Micke Grove Test Site

- Test not completed
- Recharged water recovery issues
 - Practical
 - Legal
- Water Quality Issues?
- Lease vs. Purchase?

Water Quality Issues

- ✦ Micke Grove site
 - high nitrate
 - high total dissolved solids (salts)
 - high bacteria count
 - may encounter DBCP
- ✦ Groundwater quality in Lodi generally better than outlying areas
- ✦ Source water quality affects wastewater quality – mainly total dissolved solids

Land Cost Comparisons

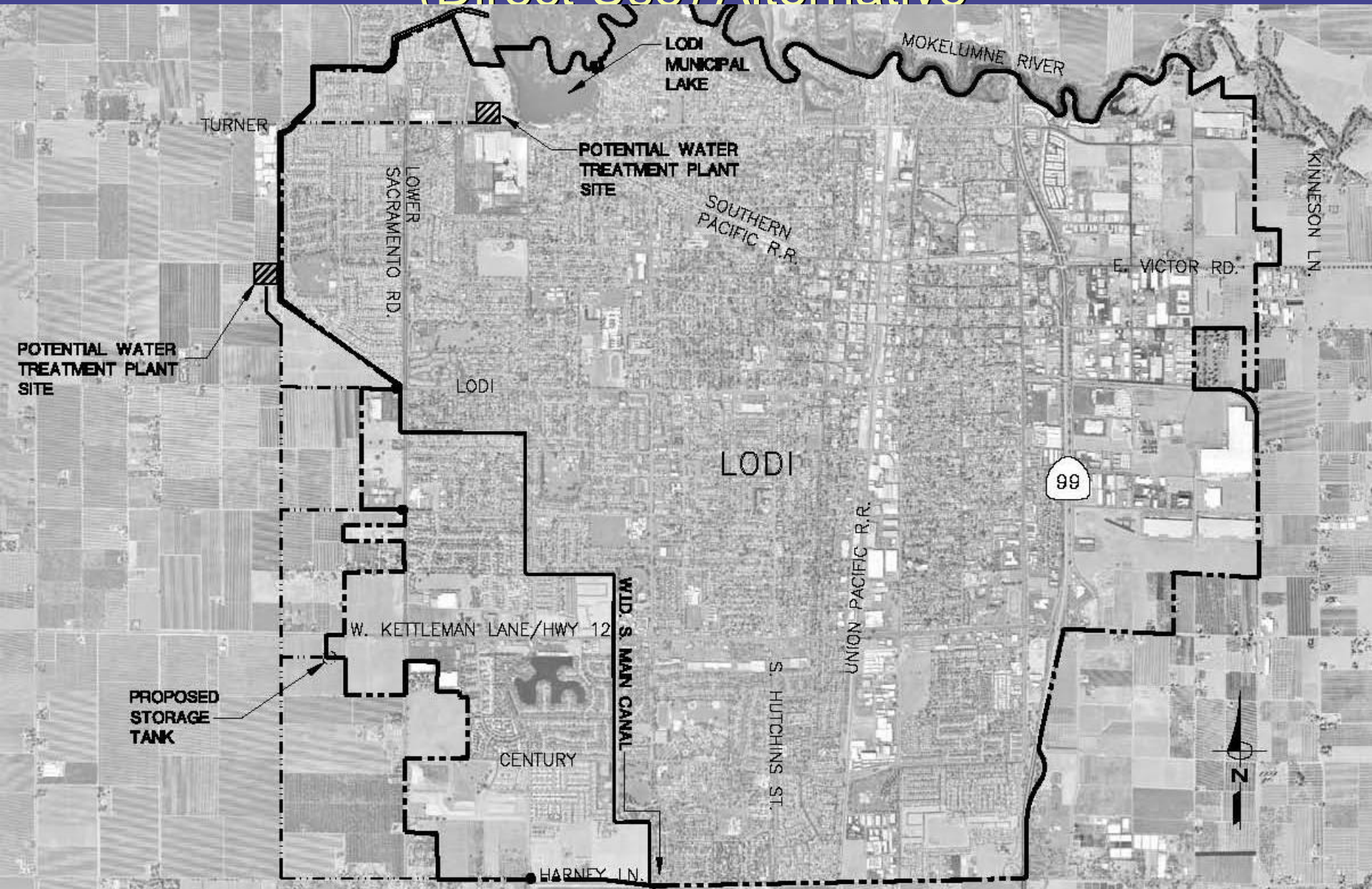
Recharge Basin - Land Cost Comparisons (88 Acre Basin)

Range of Purchase Costs per Acre ¹⁾ :	\$ 30,000	\$ 60,000	\$ 100,000	\$ 200,000	\$ 300,000
Total Cost (Purchase):	\$ 2,640,000	\$ 5,280,000	\$ 8,800,000	\$17,600,000	\$26,400,000
Lease Cost/Acre/Year:	\$ 225	\$ 275	\$ 350	\$ 500	\$ 750
Initial Costs ²⁾ :	\$ 880,000	\$ 880,000	\$ 880,000	\$ 880,000	\$ 880,000
Total Cost (40 Yr. Lease):	\$ 1,672,000	\$ 1,848,000	\$ 2,112,000	\$ 2,640,000	\$ 3,520,000

Notes:

- 1) Purchase cost includes any site development and/or conveyance costs in addition to actual basin construction costs
- 2) Initial costs for lease assumes \$10,000 per acre allowance to compensate owner for removal of vines, trees, etc.

Potential Locations - Water Treatment Plant (Direct Use) Alternative



Costs ~ Recharge vs. Direct Use

Recharge vs. Direct Use Capital Costs

Low Range

Recharge: \$ 6,013,000

leased land @
\$350/acre for 40
years

Recharge
w/Recovery: \$11,013,000

above plus
transmission
system

Direct Use: \$29,500,000

latest estimate

High Range

\$ 30,301,000

purchased land @
\$300,000/acre

\$ 35,301,000

above plus
transmission
system

\$ 36,700,000

2004 estimate

Supply Diversity

- Choice by many Valley communities
- Multiple supply sources
- Conjunctive Use
 - surface water in wetter years
 - groundwater in dry years



Sustainability - US Geological Survey*

- ✦ “The dependence of many communities in the West on ground water in storage is a management strategy that is not sustainable for future generations.”
- ✦ “Prudent management would give serious consideration to strategies that rely on surface water and hold ground water in reserve.”

(* USGS Circular 1261, 2005)

Direct Use – Expert Opinions

✦ Woodbridge Irrigation District

- Anders Christensen, General Manager

✦ San Joaquin County Water Resources

- Dr. Mel Lytle, Water Resources Coordinator

✦ City of Stockton

- Mark Madison, Municipal Utilities Director

✦ Legal

- Dan O'Hanlon, KMTG

Water Rights Implications

- ✦ Two Options: Direct Use or Recharge
- ✦ Law Allows Either Option
- ✦ Direct Use
 - Most protective to City's right to use the water

Water Rights Implications

✦ Essential Difference

- Direct Use – maintain exclusive control
- Recharge – store in source used in common by many

Water Rights Implications

✦ Direct Use

- Municipal use a beneficial use
- City gets use of full 6000 af (no loss factor)
- Rights to existing level of GW pumping protected (CWC §1005.1)

Water Rights Implications

✦ GW Recharge:

- May store in aquifer and maintain right provided ultimately put to use
- Right to claim augmented amount

Water Rights Implications

- ✦ Complications of GW Recharge:
 - Currently, others free to pump
 - Some portions lost in recharge
 - Opens door to disputes on right to recharged water
 - Sorting out rights in court long, complex, expensive and uncertain

Water Supply Planning Implications

- ✦ Law Is Placing Increasing Planning Demands On Water Suppliers and Land Use Agencies
- ✦ Diversification of Supply Improves Reliability, and Hence Provides a Firmer Basis for Planning Effort

Water Supply Planning

✦ Conclusion: Direct Use

- Best protects City's right to use of WID supply, and helps meet supply planning obligation

Next Steps – Recommend Direct Use

Formal Studies:

- ✦ **Process Evaluation/Pilot Study**
- ✦ **Watershed Sanitary Survey**
- ✦ **Site Assessments**
- ✦ **Cost Estimates**
- ✦ **Financing Plan**
- ✦ **Environmental/Regulatory Actions**

Other:

- ✦ **General Plan – Recharge with Storm Water, other intermittent water**
- ✦ **Continue to pay WID \$100,000 per month**

Summary

- ✦ Supply diversification, best use
- ✦ Sustainable practice
- ✦ Improvement in wastewater quality
- ✦ Recommendations from others
- ✦ Legal Support
- ✦ Questions/Answers/Discussion
- ✦ Direction

Recharge Water Balance

	<u>AcreFt/Yr</u>	<u>Notes</u>
Current City Pumping	17,300	
Estimated Meter Conservation	<u>- 2,600</u>	
Total:	14,700	
Additional Demand to 2030	<u>6,600</u>	
Total 2030 City Pumping:	21,300	
City Recharge	<u>- 5,400</u>	6,000 less assumed 10% losses
Net 2030 Pumping:	15,900	
Estimated Safe Yield:	<u>15,000+</u>	May be more as City expands in size
2030 Deficit:	900	To be made up with either <ul style="list-style-type: none"> ✦ Additional conservation ✦ Additional WID or other water ✦ Recycled water

filed 6-21-06
K-2

**RESOLUTION NO. 03-09-06-01
OF WOODBRIDGE IRRIGATION DISTRICT
AUTHORIZING EXECUTION OF AN AMENDMENT EXTENDING THE
AGREEMENT WITH LODI FOR ADDITIONAL FOUR YEARS**

WHEREAS, The City of Lodi has requested that its 40-year Agreement for Purchase of Water from the District, entered into on May 13, 2003, be extended for an additional four years, and also that the City be allowed to continue to bank unused water for an additional four years beyond the existing cutoff date of May 13, 2006; and

WHEREAS, the Board of Directors of the District are agreeable to granting such extension in the form of an Amendment as finally approved by the President; and

WHEREAS, the Board of Directors also wishes to inform Lodi that the District believes strongly that the highest and best use of the water by the City would be through a new surface water treatment plant and delivery to the City's customers rather than through groundwater recharge;

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF WOODBRIDGE IRRIGATION DISTRICT, as follows:


Section 1. The President and Secretary are authorized and directed to execute a First Amended Agreement with the City of Lodi, to extend the termination date of the Agreement from May 13, 2043 to September 30, 2047, and to allow the City to continue to bank unused water up to 6,000 acre-feet per annum for an additional four years from May 13, 2006 to October 15, 2010, not to exceed a total of 24,000 acre feet. The First Amended Agreement shall in form and substance as recommended by the Manager and Attorney and approved by the President.


ADOPTED the 9th day of March, 2006, by the following vote:

AYES: Directors Stokes, Shinn, Van Exel and McQueen

NOES: None

ABSENT: Luchessi

Signed: 
William Stokes, President

Attest: 
Anders Christensen, Secretary





LOWER SACRAMENTO ROAD

EXISTING
FISH BYPASS
PIPELINE

EXISTING
FISH BYPASS

MOKELUMNE RIVER

NEW DEBRIS
BOOM

DESIGN CRITERIA:
MAXIMUM APPROACH VELOCITY 0.3 fps
MAXIMUM DIVERSION 414 cfs AT POOL ELEV 40.75'
WEDGE WIRE OR PROFILE BAR SCREEN AT 1.75 mm CLEAR
MAXIMUM RESERVOIR ELEV 41.0'
EFFECTIVE SCREEN HT ELEV 41.5'
FISH BYPASS FLOW 8-15 cfs
AUTOMATED BRUSH CLEANING SYSTEM

0 50 100
SCALE IN FEET

HDR

CANAL DIVERSION NEW SCREEN STRUCTURE

OVERALL SITE PLAN

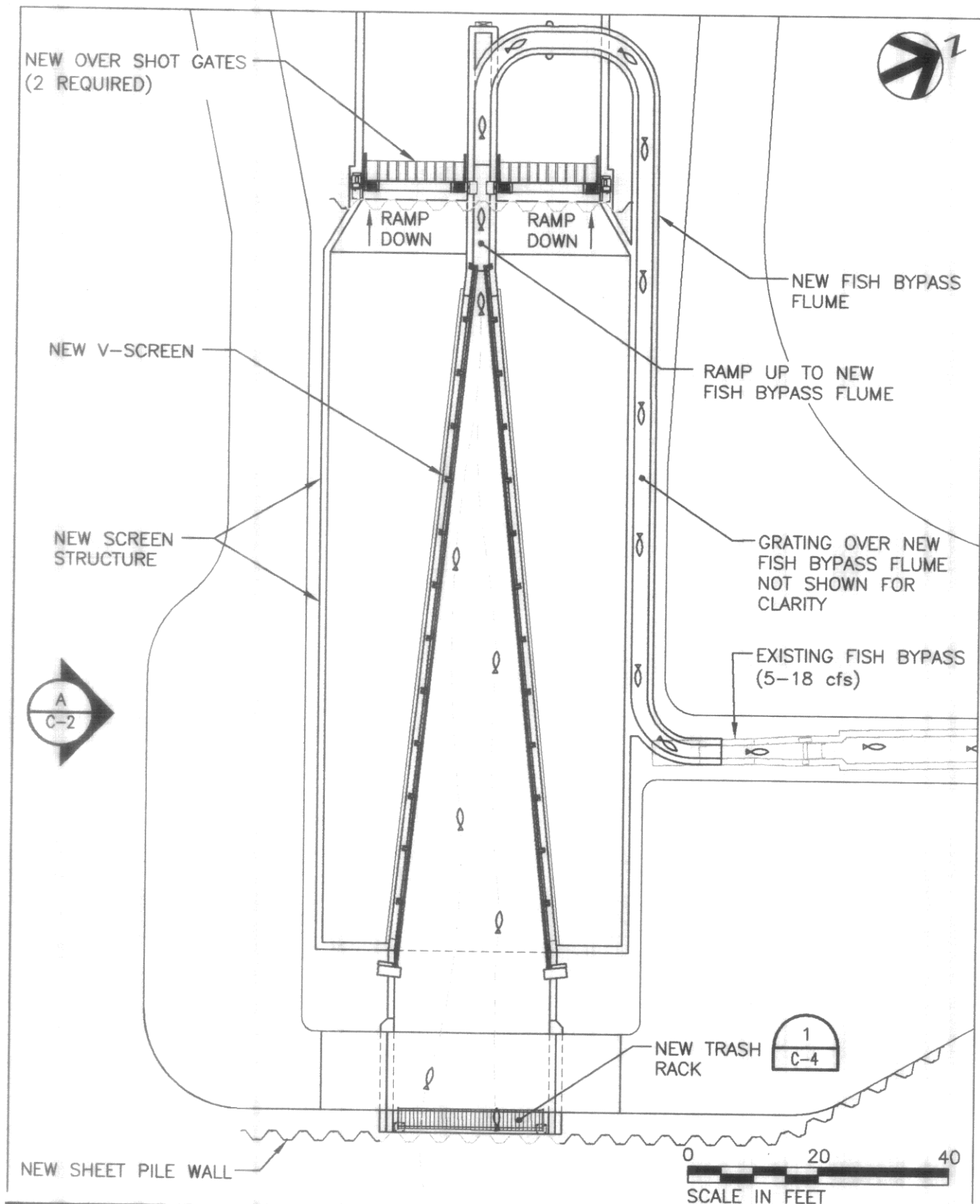
WOODBIDGE IRRIGATION DISTRICT

DATE

JUNE 13 2006

FIGURE

C-0



HDR

CANAL DIVERSION NEW SCREEN STRUCTURE

SITE PLAN

WOODBIDGE IRRIGATION DISTRICT

DATE

JUNE 13 2006

FIGURE

C-1



CITY OF STOCKTON

DEPARTMENT OF MUNICIPAL UTILITIES

2500 Navy Drive • Stockton, CA 95206-1191 • 209/937-8750 • Fax 209/937-8708
www.stocktongov.com

June 21, 2006

Richard Prima
Director of Public Works
City of Lodi
221 W. Pine Street
Lodi, CA 95241

CITY OF LODI DECISION ON A SURFACE WATER TREATMENT PLANT

The City of Stockton acknowledges your efforts to pursue a surface water treatment plant to make use of the raw surface water currently purchased from the Woodbridge Irrigation District. As you know, the City of Stockton has worked diligently towards a program to divert and treat surface water from the Sacramento-San Joaquin Delta.

The Delta Water Supply Project, as a conjunctive use project, has been shown to be the best solution for Stockton to ensure long-term reliability of our water delivery system. The clear benefits of this project are to provide a long-term supply of surface water to the Stockton Metropolitan Area and assist in the protection of the groundwater basin. We see the "Treat and Drink" option presently under consideration by the City of Lodi to be a viable option for the use of Woodbridge surface water for those same reasons.

Direct use of surface water for potable supply enhances groundwater recharge through in-lieu techniques and in-lieu recharge has been demonstrated to be one of the most efficient means of groundwater recharge. Considering the groundwater quality issues facing both Cities, enhanced use of surface water supply should be strongly considered.

The City of Lodi may find it useful to consider a project that maintains a high degree of local control. It has been our experience that advancing water supply projects is difficult and a high degree of control will better enable you to control the timing and cost of your project.

We also compliment you and your staff on your thorough evaluation of the various alternatives and look forward to maintaining a strong working relationship between the two cities.

If you have any questions or would like to discuss this further, feel free to contact me at 937-8700.

MARK J. MADISON
DIRECTOR OF MUNICIPAL UTILITIES

MJM:RLG:as



filed 6-21-06
K-2

County backs water bonds

Arrangement will raise up to \$100 million to relicense and upgrade a system of dams.

By Edgar Sanchez
BEE STAFF WRITER

Calling it an investment that will pay off, Placer County supervisors on Tuesday approved a plan to finance the relicensing of a water and power system that they say is a vital county asset.

Supervisors unanimously authorized the county treasurer to invest in up to \$100 million in bonds sold by another agency for the Middle Fork American River Project.

Of that, about \$32 million would go for the relicensing, a lengthy process that must be completed by 2013 through the Federal Energy Regulatory Commission.

Another \$15 million would be for interest on the outstanding balance on the new bonds between now and 2015.

The remainder would go for possible upgrades to the system of dams and waterways built 40 years ago to provide water to county users and to generate electrical power.

Two other entities also must approve the plan to legally activate it.

On Thursday, the Placer County Water Agency's Board became the second body to officially embrace the deal by unanimous vote.

The third and final approval is expected Monday from the newly created Middle Fork

► WATER

Water: Agencies see a future fiscal windfall

Project Finance Authority Board, which will issue the bonds.

"I don't know who came up with this great (financing) idea, but to me, it's just remarkable," Supervisor Bill Santucci told Treasurer Jenine Windeshausen before Tuesday's vote.

"You're going to save the people within this county a whole lot of money," he said, adding that the plan "gives us the ability to provide clean drinking water to the people of Placer County" for generations.

Once a new license is in place, the water and power system also will bring in millions of dollars in annual revenue that will be evenly split between the county and the Placer County Water Agency. The agencies could split up to \$20 million a year, according to some projections.

"A source of financing is needed because no power revenues are available (to the county) until 2013," Windeshausen said in a prepared statement. "At present, all the revenue (from the project) is going to PG&E and it will continue to until 2013."

Before the project was completed in 1967 - after the issuance of \$115 million in voter-approved revenue bonds by the PCWA - the water board signed a 50-year contract to sell the project's power exclusively to PG&E.

"In exchange for all power produced until 2013, PG&E agreed to pay all operations, maintenance costs and capital costs" for the project, Windeshausen said.

Pacific Gas and Electric, she added, also agreed to pay off the \$115 million debt. The last bond will be paid off in 2013, when the federal license that allows the PCWA to sell the project's energy also expires.

"In 2013, we'll begin to be able to sell energy contracts with the revenue coming back to the people of Placer County," Windeshausen said.

The PCWA, created in 1957 by a special act of the Legislature to protect the county's water resources, has owned the project since its completion.

The PCWA was governed by the Board of Supervisors until January 1975 when the board made it an independent water agency.

Earlier this year, supervisors and the PCWA created a new joint powers authority - the Middle Fork Project Finance Authority - to finance the relicensing process and to ensure the project's financial viability.

Although the project will continue to be owned and operated by the PCWA, the Middle Fork Power Authority will issue the bonds and continue its financial role "for at least as long as the bonds are outstanding," Windeshausen said.

According to county documents, the bonds are to mature in April 2036, unless they are paid off sooner.

Only two members of the public expressed reservations about the plan at last week's meeting of the Board of Supervisors.

One, John Greene, urged the board to "step back and look" at the plan "from a higher policy level."

Greene, vice chairman of the Weimar, Applegate, Colfax Municipal Advisory Council, said: "We're lending to ourselves. There's a risk in that."

But Greene, who emphasized that he was speaking as a private citizen, later said that he supported the supervisors' decision to move forward.

"I do think some further refinement has to be done - and this might include the financing plan," he said. "This will be a very positive development for the citizens of Placer County and will leave a lasting legacy for this board of directors."

Supervisor Robert Weygandt said the potential payoff was too

good to pass up.

Windeshausen said the county's initial outlay would be \$60 million - an amount that in all likelihood "will do the job."

"The upper limit of \$100 million is in case we need to borrow for major capital improvements or in the event of a major system failure," she said.

The water and power project, which includes four reservoirs, seven dams, five hydroelectric power plants, and 24 miles of tunnels, is the state's eighth-largest public power project.

An independent international engineering firm specializing in hydroelectrics recently completed a physical examination of the project and found it has been well-maintained, Windeshausen said.

A rigorous financial evaluation also was done by a firm specializing in energy economics. It, too, concluded that the project can be expected to operate for the next 40 years "with a record similar to what has been experienced since the project was constructed," Windeshausen said in her prepared statement.

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The Bee's Edgar Sanchez can be reached at esanchez@sacbee.com.

CITY COUNCIL

SUSAN HITCHCOCK,
Mayor

BOB JOHNSON,
Mayor Pro Tempore

JOHN BECKMAN

LARRY D. HANSEN

JOANNE MOUNCE

CITY OF LODI



PUBLIC WORKS DEPARTMENT

CITY HALL, 221 WEST PINE STREET / P.O. BOX 3006

LODI, CALIFORNIA 95241-1910

TELEPHONE (209) 333-6706 / FAX (209) 333-6710

EMAIL pwdept@lodi.gov

<http://www.lodi.gov>

BLAIR KING,
City Manager

JENNIFER M. PERRIN,
Interim City Clerk

D. STEPHEN SCHWABAUER,
City Attorney

RICHARD C. PRIMA, JR.,
Public Works Director

June 15, 2006

Woodbridge Irrigation District
Anders Christensen, Manager
18777 N. Lower Sacramento Road
Woodbridge, CA 95258

City of Stockton Municipal Utilities
Mark Madison, Director
2500 Navy Drive
Stockton, CA 95206

Kronick, Moscovitz, Tiedeman & Gerard
Dan O'Hanlon
400 Capitol Mall, 27th Floor
Sacramento, CA 95814-4416

San Joaquin County Water Resources
Mel Lytle, Water Resources Coordinator
1810 E. Hazelton Avenue
Stockton, CA 95201

North San Joaquin Water Conservation District
Ed Steffani, Manager
221 W. Pine Street
Lodi, CA 95240

SUBJECT: Adopt Resolution Implementing the Treatment and Direct Utilization of the Surface Water Supply from the Woodbridge Irrigation District Contractual Allotment and Authorizing Solicitation of Proposals for Technical Studies of Implementing this Option

Enclosed is a copy of background information on an item on the City Council agenda of Wednesday, June 21, 2006. The meeting will be held at 7 p.m. in the City Council Chamber, Carnegie Forum, 305 West Pine Street.

This item is on the regular calendar for Council discussion. You are welcome to attend.

If you wish to write to the City Council, please address your letter to City Council, City of Lodi, P. O. Box 3006, Lodi, California, 95241-1910. Be sure to allow time for the mail. Or, you may hand-deliver the letter to City Hall, 221 West Pine Street.

If you wish to address the Council at the Council Meeting, be sure to fill out a speaker's card (available at the Carnegie Forum immediately prior to the start of the meeting) and give it to the City Clerk. If you have any questions about communicating with the Council, please contact Jennifer Perrin, Interim City Clerk, at (209) 333-6702.

If you have any questions about the item itself, please call me at (209) 333-6759.

P. Prima

for: Richard C. Prima, Jr.
Public Works Director

RCP/pmf
Enclosure
cc: City Clerk